

Attorney Docket No.: 10491-7  
Serial No. 09/884,522

### REMARKS

This is a full and timely response to the outstanding Office Action mailed June 27, 2003. Upon entry of the amendment made herein, claim 21 has been allowed, and claims 1-20 and 22-46 remain pending in the present application.

#### 1. Summary of the Office Action Rejections

The June 27, 2003 Office Action rejects pending claims 1-3, 7 and 22 under 35 U.S.C. 102(b), and claims 1-20 and 22-46 under 35 U.S.C. §103(a). Specifically, claims 1-3, 7 and 22 were rejected as being anticipated by *Goldfain* (U.S. Patent No. 6,065,837) and by *Kapany* (U.S. Patent No. 3,016,785), and claims 1-20 and 22-46 were rejected as being obvious over *Goodman* (U.S. Patent No. 4,903,906) only. The Applicant respectfully submits the above amendments to the claims, traverses these rejections, and submits the following remarks in support of allowance of the present application.

#### 2. Interview Summary

The Applicant appreciates the courtesy extended to the Applicant's counsel and the Inventor, Dr. Cruz, by the Examiner in the telephone interview on August 20, 2003. In the telephone interview, Applicant's counsel and Dr. Cruz discussed the case with the Examiner. Applicant's counsel and Dr. Cruz endeavored to explain to the Examiner what, in Applicant's view, are significant differences between the invention(s) recited by the claims and prior art cited in the Office Action.

This Response And Amendment is filed in compliance with what was discussed in the interview. The amendments to independent claims 1, 16, 22, 31 and 38 are in accordance with the discussion in the telephone interview, and further clarifies those claims. Additionally, the Applicant herewith submits remarks specifically responding to

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the rejections raised by the Examiner in the Office Action. It is believed that no new matter has been added to the present application.

**3. Amendments To The Claims**

Applicant has amended claims 1, 16, 22, 31 and 38 as indicated above to more clearly define the invention of those claims in accord with the what was discussed with the Examiner in the August 20, 2003 interview. Applicant's amendments do not change the scope of the claims or add any new matter.

**4. Response To Rejections Of Claims Under 35 U.S.C. §102(b)**

Of claims 1-3, 7 and 22 that were rejected under §102(b), claims 1 and 22 are independent claims. Claims 2-3 and 7 depend from independent claim 1.

For brevity, and because the Applicant's arguments against the rejection of claims 1-3, 7 and 22 as being anticipated by *Goldfain* and *Kapany* are equally applicable for all of claims 1-3, 7 and 22, the Applicant uses claim 1 as illustrative of the response for claims 2-3, 7 and 22. Furthermore, the traversal is made with the understanding that claims 2-3, 7 and 22 are also patentably distinct over the prior art and may include additional features that, beyond those recited in claim 1, provide further, separate, and independent bases for patentability.

**a. Goldfain**

The Office Action asserts that *Goldfain* discloses all of the elements of independent claim 1. For the reasons discussed with the Examiner in the Interview, the applicant respectfully disagrees. Particularly, *Goldfain* does not teach transmitting a whole image through a single filament of fiber optic cable, as recited in claim 1.

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Claim 1, as amended, recites, "transmitting images over a single filament of a fiber optic cable." *Goldfain* does not teach this feature, and the Office Action makes no citation to any portion of *Goldfain* that has anything to do with transmitting an image through a fiber optic cable. In contrast, *Goldfain* describes an ophthalmoscope comprising a defocused light source (see Abstract). *Goldfain* only describes using a "filament based lamp" or "fiber optic light source" to provide a "pointlike light-generating light source" (Col. 4, ll. 34-45), which does not involve transmission of an image through a fiber optic cable as recited in claim 1.

Thus, given that *Goldfain* fails to teach the feature of "transmitting images over a single filament of a fiber optic cable," Applicant respectfully submits that not all of the features of independent claim 1 are taught by *Goldfain*, and therefore Applicant submits that *Goldfain* does not anticipate independent claim 1, and claim 1 is allowable over *Goldfain*.

Applicant submits that independent claim 22 is allowable for similar reasons stated above with respect to independent claim 1. However, other features of independent claim 22 distinguish it over the prior art. For example, independent claim 22 further claims transmitting one or more images over a plurality of filaments, each filament transmitting a whole image. This feature is illustrated, for example, in Fig. 7, and provides for a unique image broadcast system, which *Goldfain* does not teach. Thus, since *Goldfain* does not teach transmitting a whole image over a single filament of fiber optic cable, and nor does *Goldfain* teach transmitting one or more images over one or more fiber optic cables, each fiber optic cable transmitting a whole image, *Goldfain* does not anticipate claim 22.

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Applicant does not herein address the specific rejections for each of dependent claims 2-3 and 7 because each of those claims depends from independent claim 1, and dependent claims 2-3 and 7 are therefore allowable based on the allowability of independent claim 1. However, Applicant reserves the right to address the specific rejections of dependent claims 2-3 and 7 should it be necessary to do so. Thus, Applicant submits that the rejections of dependent claims 2-3 and 7 have been overcome for the same reasons detailed above with regard to the rejection of independent claim 1.

**b. Kapany**

The Office Action asserts that *Kapany* discloses all of the elements of independent claim 1. For the reasons discussed with the Examiner in the Interview, the applicant respectfully disagrees. Particularly, as is the case with *Goldfain* discussed above, *Kapany* does not teach transmitting a whole image through a single filament of fiber optic cable, as recited in claim 1.

Claim 1, as amended, recites, "transmitting images over a single filament of a fiber optic cable." While *Kapany* does teach the feature of transmitting images over a number of fibers (c.g. Col. 2, ll. 12-24), which *Goldfain* does not, *Kapany* still does not teach transmitting an image over a single filament. The Office Action makes no citation to any portion of *Kapany* that teaches transmitting an image through a single filament on a fiber optic cable. One of the advantages of this feature is clearly stated in the specification:

The system of the present invention provides the further advantage of communicating entire images through a single filament of a fiber optic cable without reducing image quality, thereby avoiding the need for and/or increased expense associated with fiber optic cables with a multitude of filaments. Since each filament in a fiber optic cable can be adapted to communicate entire images, the fiber optic cable can experience a

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substantial increase in its overall data transfer rate. Lastly, it will be appreciated that the system of the present invention provides the still further advantage of capturing and visibly presenting images without the need for a power source.

(p. 6, ll.4-11).

In the Nanoptics.com document submitted with the Applicant's Information Disclosure Statement, Bongsoo Lee, PhD., "Fiberoptic Tutorial," it is stated that:

It is impossible for a single fiber to transmit an image. An individual fiber can transmit only a spot of a certain color and intensity. To transmit an image, a large number of single fibers must be aligned and fused together.

Dr. Lee basis his study of fiberscopes for medical endoscopy in Kapany's "Fiberoptics: Principles and Applications" listed in Dr. Lee's references. Thus, those skilled in the art have recognized the fact that *Kapany* only discloses transmission of an image over a large number of fibers, and not a single fiber as claimed in claim 1. Dr. Lee's comments even suggests that the technology of *Kapany* teaches away from transmission of an image through a single filament, suggesting that it is "impossible." However, Applicant has claimed and described doing just that.

Thus, given that *Kapany* fails to teach the feature of "transmitting images over a single filament of a fiber optic cable," Applicant respectfully submits that not all of the features of independent claim 1 are taught by *Kapany*, and therefore Applicant submits that *Kapany* does not anticipate independent claim 1, and claim 1 is allowable over *Kapany*.

Applicant submits that independent claim 22 is allowable for similar reasons stated above with respect to independent claim 1. However, other features of independent claim 22 distinguish it over the prior art. For example, independent claim 22 further claims transmitting one or more images over a plurality of filaments, each

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filament transmitting a whole image. This feature is illustrated, for example, in Fig. 7, and provides for a unique image broadcast system, which *Kapany* does not teach. Thus, since *Kapany* does not teach transmitting a whole image over a single filament of fiber optic cable, and nor does *Kapany* teach transmitting one or more images over one or more fiber optic cables, each fiber optic cable transmitting a whole image, *Kapany* does not anticipate claim 22.

Applicant does not herein address the specific rejections for each of dependent claims 2-3 and 7 because each of those claims depends from independent claim 1, and dependent claims 2-3 and 7 are therefore allowable based on the allowability of independent claim 1. However, Applicant reserves the right to address the specific rejections of dependent claims 2-3 and 7 should it be necessary to do so. Thus, Applicant submits that the rejections of dependent claims 2-3 and 7 have been overcome for the same reasons detailed above with regard to the rejection of independent claim 1.

**5. Response To Rejections Of Claims Under 35 U.S.C. §103(a)**

Of claims 1-20 and 22-46 that were rejected under §103(a), claims 1, 16, 22, 31 and 38 are independent claims. Claims 2-14 depend from independent claim 1; claims 17-20 depend from independent claim 16, claims 23-30 depend from independent claim 22, claims 32-37 depend from independent claim 31, and claims 39-46 depend from independent claim 38.

For brevity, and because the Applicant's arguments against the rejection of claims 1-20 and 22-46 as being obvious over by *Goodman* are equally applicable for all of claims 1-20 and 22-46, the Applicant uses claim 1 as illustrative of the response for claims 2-20 and 22-46. Furthermore, the traversal is made with the understanding that

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claims 2-20 and 22-46 are also patentably distinct over the prior art and may include additional features that, beyond those recited in claim 1, provide further, separate, and independent bases for patentability.

The Office Action asserts that *Goodman* provides image transmission "by means of fixed means and by an electrical means and which permits video viewing of a formed image first received by the fiber optic means and then transmitted by electrical means to a video monitor" using "a fiber optic element, photodetector means, an electronic means, [and a] video monitor means for receiving and displaying the video signal as an optical image representing [and] corresponding to the focused optical image formed on the front face of the optical element." The Office action further asserts that,

it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize such lens system which would include an inverted microscope objective and the first lens being optically coupled with filament [sic] via an inverted microscope objective which being adopted to produce substantially-reduced image from an initial image generated by the lens system since it has been held that the device allows to provide [sic] an image magnification or demagnification, where needed, [sic] involves only routine skill in the art.

Applicant respectfully disagrees with the Office Action's assertion of obviousness. First, *Goodman* describes transmission through a "fiber object element consisting of a fused coherent bundle of optical filaments" through which the image is transmitted (Col. 1, ll. 59-61), and does not transmit an image through a single filament. Second, and more importantly, as the Office Action admits, *Goodman* specifically describes a system that uses photodetectors to convert the images to conventional electronic signals to transmit through an electrical cable (e.g. no. 58 in Fig. 4) to a video screen (Col. 1, ll. 59-col. 2, ll. 8). The fiber optic bundle is not used for transmission, but

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as a taper (e.g. no. 40 in Fig. 4) for focusing the image onto a photodetector before conversion of the image to electrical signals for transmission (Col. 3, l. 14-col. 4, l. 9).

In sharp contrast to *Goodman*, the claimed invention substantially reduces the image for focusing into a single fiber optic filament for transmission. There is no need for electrical conversion of the image for transmission as an electrical signal as described in *Goodman*. *Goodman* specifically describes using its fiber optic bundle to directly couple the camera to a photodetector to convert the image to an electrical signal for transmission. The fiber optic bundle may reduce or enlarge the image by, for example, a factor of 3, depending on the image format and type of detector used to convert the image into electrical signals for transmission (col. 3, ll.53-65). Thus, *Goodman* does not teach transmission of an image through a single filament of a fiber optic cable, but teaches transmission of electrical signals through an electrical cable.

The Office Action's assertion that it would have been obvious to one skilled in the art to "substantially reduce an image" is, respectfully, improper, given the use of the fiber optic bundle in *Goodman* for tapering an image for photodetection, and not transmission. If the fiber optic bundle of *Goodman* was to substantially reduce the image, as suggested by the Office Action, then photodetection would be impossible. Further, since transmission is accomplished using electrical signals through an electrical cable, *Goodman* teaches away from the concept of transmitting a substantially reduced image through a single fiber optic filament as recited in claim 1, in which there is no conversion of the image into electrical signals before transmission.

Finally, the Office Action has identified no prior art reference that discloses substantially reducing an image for transmission, nor a motivation to combine such prior



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art with *Goodman* for the obviousness rejection. In order to maintain the obviousness rejection, then the Office Action must state where each element is found in the prior art, and where a motivation can be found to combine the prior art for the obviousness rejection. Since the Office Action has not accomplished this, Applicant respectfully disagrees with the obviousness rejection.

Applicant thus submits that claim 1 is allowable over *Goodman*, as well as independent claims 1, 16, 22, 31 and 38 for the same reasons. Further, the Office Action does not address or state where in the prior art the broadcast system claimed by claim 22, and described in detail above, can be found.

Applicant does not herein address the specific rejections for each of dependent claims 2-14, 17-20, 23-30, 32-37 and 39-46 because each of those claims depends from independent claims 1, 16, 22, 31 and 38 respectively which are each allowable for the reasons discussed above, and dependent claims 2-14, 17-20, 23-30, 32-37 and 39-46 are therefore allowable based on the allowability of independent claims 1, 16, 22, 31 and 38. However, Applicant reserves the right to address the specific rejections of dependent claims 2-14, 17-20, 23-30, 32-37 and 39-46 should it be necessary to do so. Thus, Applicant submits that the rejections of dependent claims 2-14, 17-20, 23-30, 32-37 and 39-46 have been overcome for the same reasons detailed above with regard to the rejection of independent claim 1.

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### CONCLUSION

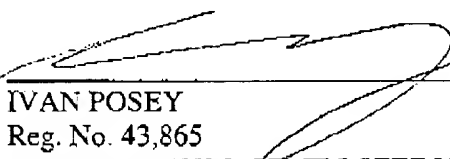
Applicant has made an earnest and bona fide effort to clarify the issues before the Examiner and to place this case in condition for allowance. In view of the foregoing discussions, it is clear that the cited art does not teach all of the elements of any claim of the present invention. Thus, the claimed invention is patentably distinct over the prior art. Therefore, reconsideration and allowance of all of claims 1-20 and 22-46 is believed to be in order, as well as already allowed claim 21, and an early Notice of Allowance to this effect is respectfully requested.

Additionally, if the Examiner does not believe the Application to be in a condition for allowance, Applicant formally requests an interview with the Examiner regarding this case.

If the Examiner should have any questions concerning the foregoing, the Examiner is invited to telephone the undersigned attorney at (310) 712-8311. The undersigned attorney can normally be reached Monday through Friday from about 9:30 AM to 5:30 PM Pacific Time.

Respectfully submitted,

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